The Alberta Resources Railway

Alberta Resources Railway

NORTHERN ALBERTA RAILWAY

Grande Prairie

PROPOSED PULP MILL

WAPITI RIVER

GOLD CREEK
GAS PROCESSING PLANT

CUTBANK RIVER

BRITISH COLUMBIA
ALBERTA

LOGGING SPUR

LOGGING SPUR

SMOKY RIVER

SMOKY RIVER COAL FIELD

FLOOD CREEK

THERMAL POWER PLANT

MUSKEG RIVER

Grande Cache

BERLAND RIVER

LITTLE BERLAND RIVER

WILDHAY RIVER

SOLOMON CREEK

ATHABASCA RIVER

NATIONAL RAILWAY

Hinton

Brule

CANADIAN

LEGEND

GAS FIELD

COAL DEPOSITS

Confidence in Alberta's Future

It is to the northern half of the province, with its 130,000 square miles of largely undeveloped natural resources, that Albertans should look to maintain the momentum of economic growth which has characterized Alberta over the past two decades.

Probably one of the richest, but hitherto untouched resource regions of the province, lies along the eastern slopes of the Rockies between Hinton and Grande Prairie. This region has long been known for extensive resources of coal, gypsum, natural gas and timber but has remained undeveloped because it lacked transportation facilities to make these resources readily available to distant markets. This applies particularly to overseas markets offering promise of ability to absorb the very substantial output of industrial materials which Alberta's natural resources can support.

In line with its policy to invest in the development of Alberta's resources, the Government in October, 1965, entered into an agreement with Canadian National which provided for construction of a railway line linking Grande Prairie and Canadian National's main line to the Pacific Coast ports of Vancouver and Prince Rupert.

In its agreement with Canadian National, the Province provided the initial capital for construction of the rail line, to be known as the Alberta Resources Railway, while Canadian National undertook to build the line and to operate it on a lease basis with option to purchase. Construction of the railway line began three months later.

This railway is needed to unlock the resources of the Alberta foothills country. The extensive coal deposits of the Smoky River valley are now under active development and long term contracts have been negotiated and signed with buyers interested in obtaining large tonnages of high quality metallurgical coal. One can look with some confidence to development in the vicinity of the coal mine of other industrial operations based on the mine output.

Construction has started on a natural gas processing plant at Gold Creek which will produce 3600 barrels of condensate and 100 tons of sulphur daily from natural gas.

Concerning the forest resources traversed by the new railway line, two sidings have been built at Mile 150 and 160 to take out saw logs and an agreement looking toward construction of a major pulp mill, 600 tons daily capacity, to be located south of Grande Prairie, may be imminent.

The Government confidently expects that the Alberta Resources Railway line, in linking resources of the foothills to domestic and overseas markets, and in providing a new outlet for the agricultural products of the Peace River District, will prove a major factor in advancing the economy of northwest Alberta and, indeed, of the whole province.

Hon. H. E. Strom,
Premier.

Building the line

Not since the transcontinental railway lines were completed many years ago has there been construction as heavy as that experienced in the building of the 234-mile Alberta Resources Railway through the foothills of the Rocky Mountains.

Because the railway parallels the main range it must cross numerous watersheds carved out by the drainage from the high peaks nearby.

In the result, there are 16 bridges along the route with a combined length of two miles. Six of them are major structures, each more than 500 feet long. One has a height of 200 feet, two are 190 feet and a fourth is 110 feet high.

From its start on the Canadian National main line at Brule, 16 miles west of Hinton, the route ascends nearly 2,000 feet to a summit at Mile 60 in the vicinity of Shand Creek, elevation 4,970 feet. It carries on through rugged terrain to Mile 75 and then commences a gradual descent to the valley of the Smoky River.

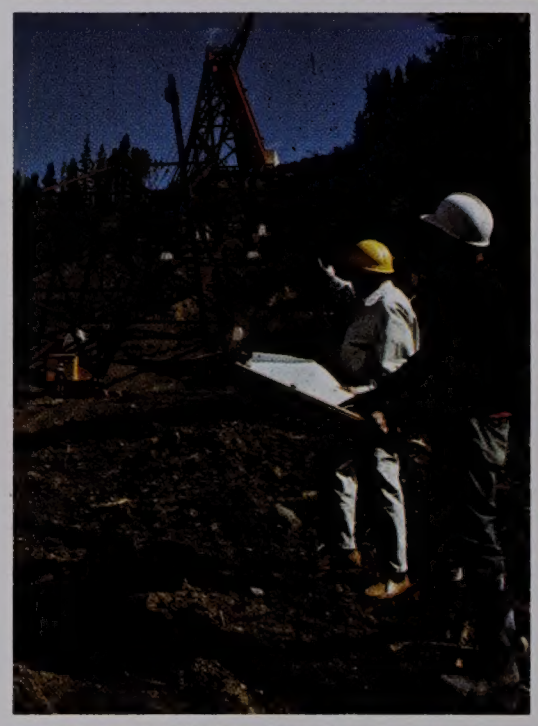
At Mile 110 the railway reaches its first major objective, the coal mines of the Smoky. Before the line leaves the Smoky it will have followed the river for 80 miles and crossed its valley three times.

Brawling and immature, the Smoky River is tight and narrow in its upper reaches and required very heavy works to overcome the obstacles to construction. From a scenic standpoint, however, the traverse of the valley is an outstanding experience. Abundant in game—moose, elk, deer, bear, wild horses—the hillsides are beautifully meadowed and the whole area rich in primitive beauty.

Shortly after leaving the Smoky the line emerges on to a plateau at Mile 195 and crosses it for 40 miles through potentially rich farmland into Grande Prairie.

It was a major, three-year project to design and build the Alberta Resources Railway. Almost 45 million cubic yards of materials were excavated and placed. When it is realized the Peace River dam project involved 60 million cubic yards, the magnitude of the job becomes apparent.

To carry the railway across the chasm of Flood Creek, for instance, required an embankment 175 feet high over twin, structural steel-plate drainage pipes. It is the highest known work of its kind in North America and effected significant construction economies. The fill has a volume of 650,000 cubic yards.



President's Statement:

"We in Canadian National are very glad to be associated with Alberta in the new Alberta Resources Railway project, designed to link rich resources in the northwestern part of Alberta with the transcontinental railway network and with distant markets in North America and overseas. My heartiest congratulations to all those who have contributed to this very important transportation development.

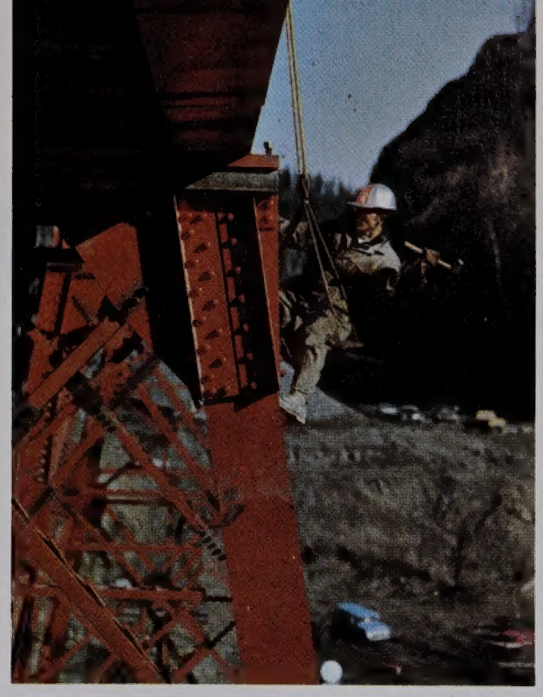
N. J. MacMillan, Q.C.,
Chairman and President,
Canadian National Railways

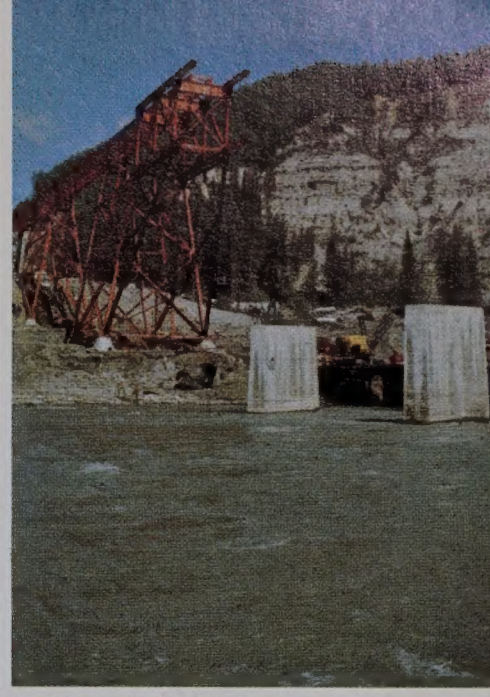
The techniques of the relatively new science of soil mechanics were used frequently to cope with other large fills over culverts but the Flood Creek project was unique in that new soil mechanics principles were applied in its design.

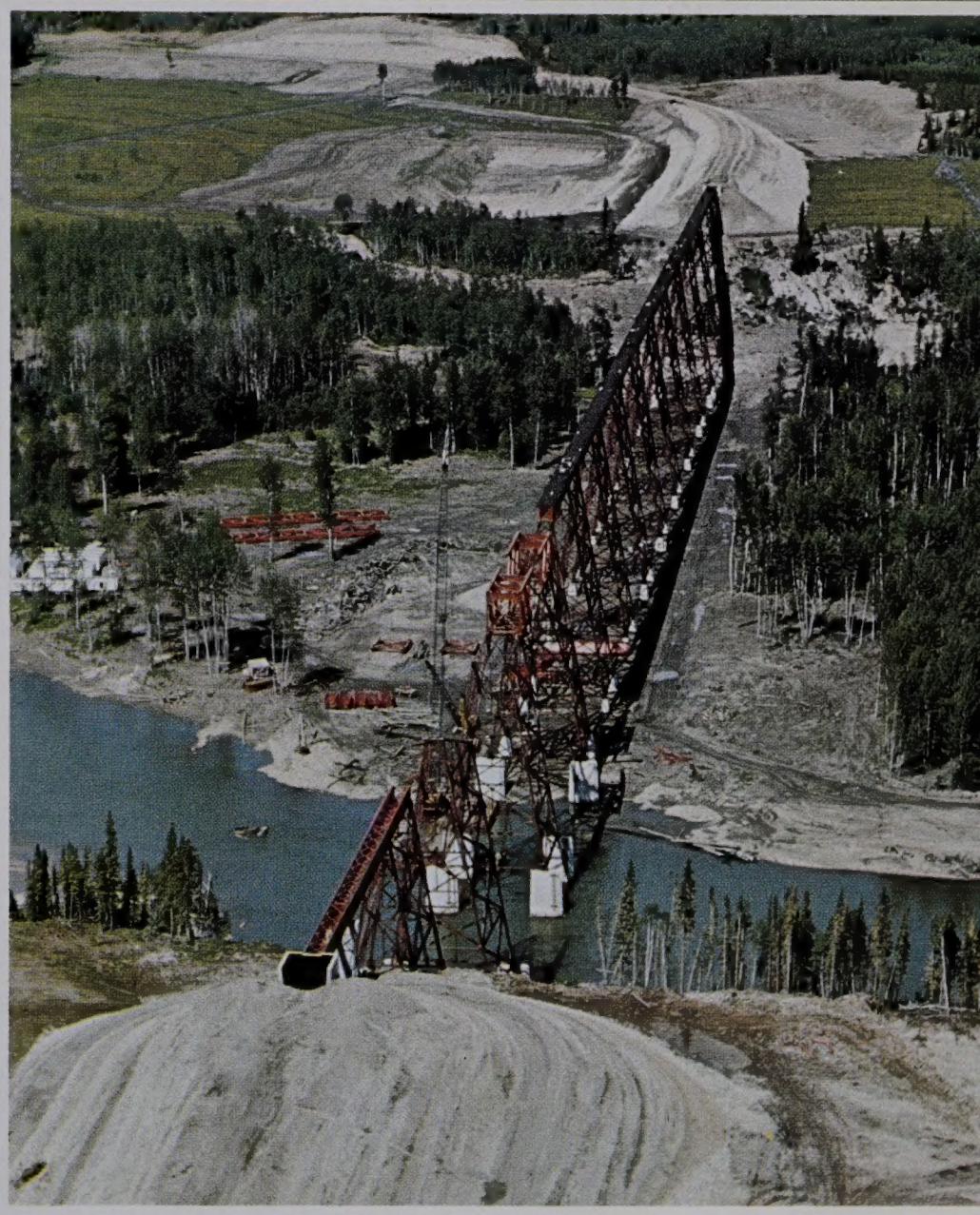
New techniques were used in the railway survey stage also. A helicopter-borne tellurometer was used to establish the essential ground controls and speed up work in difficult country tremendously.

Computers were used in the design stage of the bridges making use of programs developed by Canadian National for calculation of forces in welded steel girders and the legs and bracing of towers.

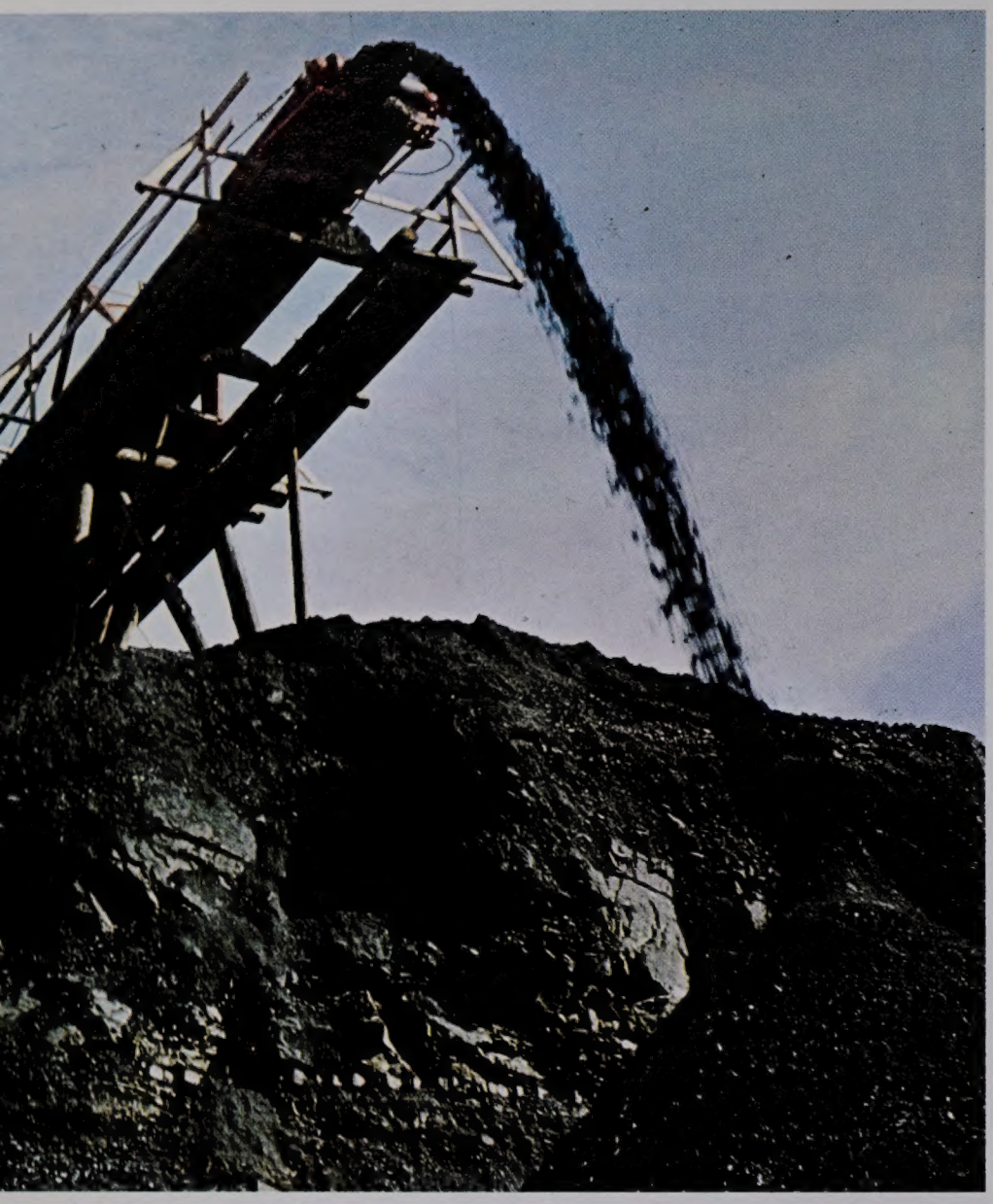
In view of the traffic the Alberta Resources Railway will carry—in particular 100-car unit trains weighing in excess of 13,000 tons—it is interesting that the ruling grade of compensated one percent, against the heavy southbound traffic, makes it an economical line over which to operate, considering the roughness of the country. Northbound the ruling grade is 1.5 percent against the lighter traffic. Maximum curvature is six degrees.







Coal of the Smoky



While the Smoky River coal field was known as far back as World War I the major geological appraisal of the area was done by McIntyre Porcupine Mines Ltd. in the early 1960's.

There have been some eleven seams identified in the area of the Smoky ranging in thickness from a matter of two or three feet up to the massive 25-foot thick Number Four seam which outcrops in the valley of the Smoky some 200 to 300 feet above what is now the actual minesite. Not only are the reserves tremendous in quantity, the quality of the seams is excellent. This is the only known source of low volatile, strong coking coal of the Pocohontas type outside the United States.

The seams lie in complex geological systems which cause extreme variations of mining conditions. There are, however, large areas of fairly low-pitch coal which lend themselves to the most modern

system of mining. The whole area will be blocked out using giant cutting machines which rip the roadways or tunnels about twenty feet wide and ten feet high into the seams at the rate of over 200 feet per day.

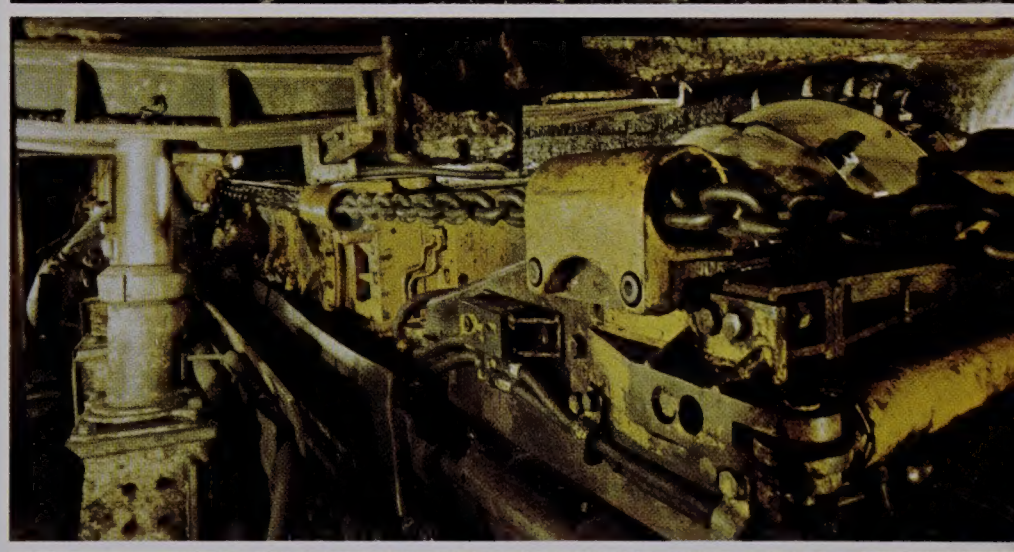
These roadways will form the ventilation and supply arteries for the most productive method of mining known to present day mining engineers. This is the "longwall-retreat system" which consists of blocking out a piece of coal 3,000 feet long, eight feet high and 450 feet wide and installing a machine which will cut off slices at the rate of 1,000 tons of coal an hour. The space from which the coal is taken is supported by a self-advancing hydraulic system capable of supporting 45,000 tons of roof weight across the width of the face.

More than 10 miles of conveyors will bring the coal from the four longwall faces to a high-capacity belt conveying system which will carry it to the surface at a rate of 3,000 tons per hour.

To meet the exacting quality requirements of the Japanese steel industry, the raw coal will be upgraded by a process of heavy media separation, froth flotation and thermal drying. It will be loaded at 4,000 tons per hour into 80-100 car unit trains bound for Vancouver.

Rejects from the metallurgical coal treatment process will be further treated to produce steam coal. This steam coal will be burned in a new coal-fired, electric generating plant of up to 150 MW size which is to be built by Canadian Utilities Limited at the minesite.

Thus, Smoky River operation will make maximum utilization of one of Alberta's most valuable commodities. Alberta and Canada will benefit by over $440,000,000 of exports of metallurgical coal, new jobs will be created, increased tax revenues will be available to both Federal and Provincial Governments and low cost power will be generated for the benefit of Albertans and Alberta industry.



Grande Cache ... Instant town

When the new railway was announced to develop the foothills resources, the Provincial Planning Board commenced investigating sites for the town that would inevitably accompany a large-scale mining project.

Once McIntyre Porcupine Mines had fixed its plant location, a site eight miles away was chosen on a gently sloping plateau overlooking the Smoky River from which the coalfield takes its name. It was christened Grande Cache.

The fur traders who founded the original Grande Cache nearby would applaud the choice of location. It commands unparalleled views of the main Rockies and higher foothills in every direction and, from its elevation above the river, looks down the valley of the Smoky toward its source in the mountains.

In the fall of 1966 the provincial government established a Board of Administrators for Grande Cache. The board is responsible for developing the new town as laid out by the Provincial Planning Board and its engineering consultants.

Of the 500 acres in the townsite, eleven percent is devoted to public and institutional-type buildings, 20 percent to commercial and industrial uses and 60 percent to housing. Although the estimated, ultimate population is 6,000 the town can be extended and still preserve all the design features that make for gracious living.

Contracts totalling $1,125,000 have already been let for installation of water and sewage systems to cover the first phase of this year's development. It includes 250 residential lots, the school and recreation area, hospital, commercial centre and

industrial area. If weather permits in the fall, another 3-400 residential lots may be provided.

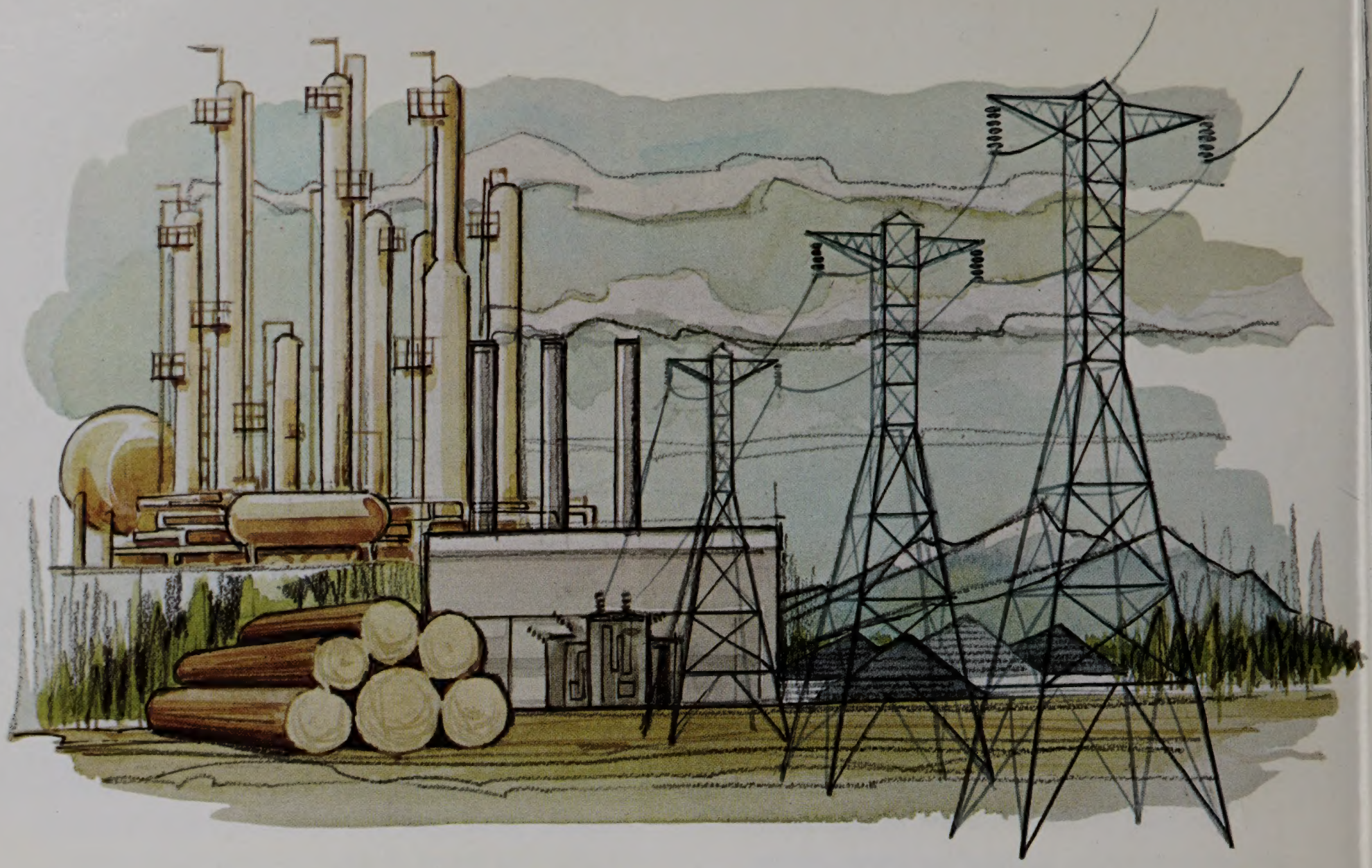
Tenders are being called this month for construction of a 16-roomed school to be ready by September 1 next and plans are nearing completion for an 18-24 roomed school with gymnasium, science, home economics and shop facilities to be ready in early 1970. It is anticipated that tenders will soon be called for the 34-bed hospital and 10-bed nurses' residence.

The town recreation centre, as planned, will include gymnasium, artificial ice arena, curling rink and indoor swimming pool. First stage tenders are now being called.

Construction will commence next month on a 50,000 square foot, mall-type shopping centre. Another 20,000 square feet is available for individual developers.

On the residential side, building is keeping pace with the progress of the mine. Homes for 170 employees will be ready for occupancy in September with another 250 ready in late 1969 and early 1970. The administrators have made 15 acres of land available for trailer court development. It is interesting that Grande Cache is designed for a gross density of 12 persons per acre.

Highway access will be via an all-weather highway connecting with Highway 16 just west of Hinton. There is an airstrip located south of Grande Cache. The Board of Administrators has it under study with a view to scheduled flights into and out of the town. There is little doubt that with its magnificent scenery, its crisp new amenities and abundance of fish and game Grande Cache has a future as a tourist centre as well as a community serving resource development.



The first industries

The magnetic qualities of a railway are being demonstrated early in the life of the Alberta Resources Railway.

Construction will commence this summer on a $7½ millions natural gas processing plant for the Gold Creek field which straddles the rail line 35 miles south of Grande Prairie. A railway spur is already installed to take machinery and supplies into the site. Completion is scheduled for early 1970.

Planned initial production is 40 million cubic feet of residue gas, 3,600 barrels of condensates and 100 long tons of sulphur daily. Solid and molten sulphur will be marketed via the new rail line. Atlantic Richfield will operate the plant for itself and associates—Pan American Petroleum Corp. and Scurry Rainbow Oils Ltd. The field was discovered in 1964.

A coal-fired electric-generating plant to be built at the Smoky River minesite is now in its final planning stage. It will have a nominal capacity of 150,000 kilowatts and is scheduled for completion by Canadian Utilities Ltd. in 1972. The new power will be fed into the provincial grid via Grande Prairie and Simonette.

McIntyre Porcupine Mines is building a $40 millions coal operation with designed initial annual capacity of more than two million tons of metallurgical coal for export and 500,000 tons of steam coal for consumption in the C.U.L. generating plant. Thus the Smoky River operation will make maximum use of the coal resources.

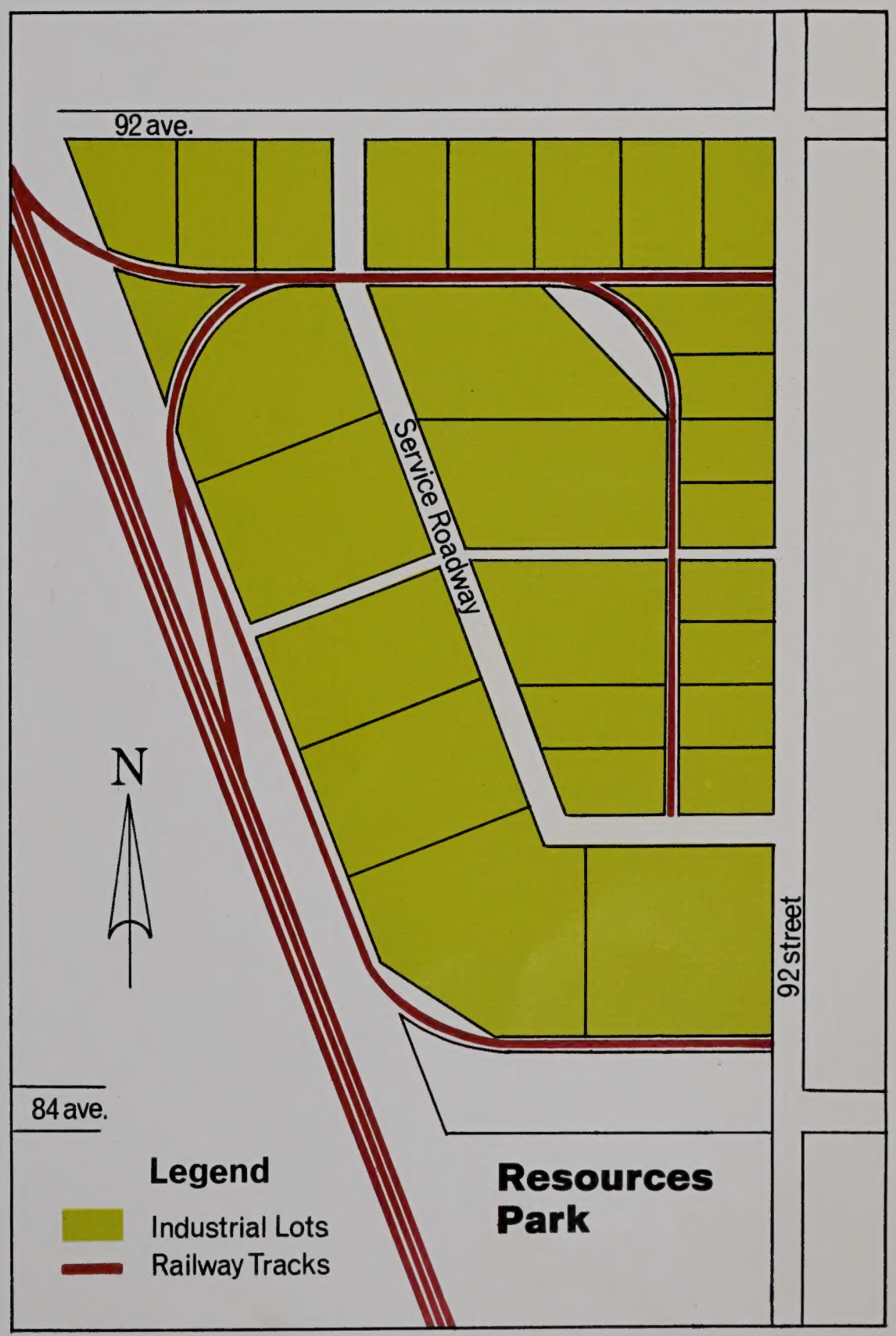
Logging enterprises are already located on the new rail line and log loading tracks have been built at Mile 150 and 160 for Grande Prairie and Edmonton operators.

Waiting in the wings is a $50 millions pulp mill with a 600 tons per day capacity and using 420,000 cords of pulpwood annually. Feasibility studies are now in progress.

In terms of employment, the mill would require 400 employees to operate and 500 more in woods operations. Its timber limits are located along the northern half of the Alberta Resources Railway.

New Industrial Park for Grande Prairie

Of the 66,000 residents in the Central Peace River District, more than one-third live in the Grande Prairie area and 12,000 in the City of Grande Prairie itself. It is the home of a fully-integrated forest industry with export outlets in the United States and United Kingdom, headquarters for a flourishing portable and prefabricated housing manufacturer and the base for two planing mills producing 75 million FBM of lumber annually. There are some 15 industries in the community which has public and separate schools systems providing all grades up to grade 12 and also a junior college in affiliation with the University of Alberta. The Alberta Resources Railway has added to its industrial capacity with the 187-acre Resources Park, suitable for light industry and located in the southeast part of the city close to the main business area. The land is completely serviced with rail and road, sewer and water. Industrial lead tracks and service roads lead to the main A.R.R. railway line and principal streets and roadways. Enquiries are directed to the Industrial Department, Canadian National Railways, CN Tower, Edmonton.



Wild life of the foothills

Alberta Resources Railway

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